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AUTHOR	Queen, Robert; Rezin, Andrew
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ABSTRACT

In recent years, new economic pressures have been placed on community colleges as a result of increased expectations for accountability on the part of governing bodies and the public. In responding to these pressures, colleges must consider new approaches to management, while the tools and approaches developed in private industry can provide guidance. The organizations that have risen to the forefront of American private industry have done so primarily through the implementation of a continuous improvement management philosophy. Quality improvement is a process predicated on a long-term organizational commitment to fundamental change, which requires a high level of commitment and strong direction. This process is based on management by data, used to analyze the health of the organization, identify potential problem areas, and measure success or failure. Basic tools for collecting data include the following: (1) the Deming Plan-Do-Check-Act cycle, which helps identify potential areas of improvement and test potential remedies; (2) run charts, or graphs of system outcomes over time that can help alert users to a need for corrective action; (3) trend charts, which allow users to see long-term movement and forecast future performance; and (4) flow charts, or graphic descriptions of the steps involved in any work process. Other management tools include program reviews and evaluation and cost/benefit analyses. Contains 10 references. (HAA)

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PRACTICAL STRATEGIES TO JUSTIFY YOUR 'PRESENT' AND ENSURE YOUR 'FUTURE'

By

Robert Queen
Chair, Graphics Communications Technology
and
Andrew Rezin
Chair, Automotive Technology

Columbus State Community College
Columbus, OH

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Andrew A. Rezin, B.A., M.A.

Andy Rezin has been Chairperson of Automotive Technology at Columbus State Community College since 1993 and has taught at the college since 1985. Prior to his current position, he spent twenty years in management positions in the automotive industry. As a result of his extensive private sector management experience, he has the dual perspectives of having been both a final consumer of the educational process as well as a direct educational provider. He has been involved in implementing continuous improvement programs in both industry and education.

Mr. Rezin is a graduate of the Crosby Quality College, has a B. A. in Marketing and Management from Kent State, an M. A. in Human Resource Development from The Ohio State University, and is currently a Ph. D. candidate in Comprehensive Vocational Education at The Ohio State University. He is a member of Phi Kappa Phi honorary and on the board of Omicron Tau Theta.

Robert L. Queen, A.A.S., B.Sc., M.A.

Mr. Queen is currently Chairperson of the Graphic Communications department. Prior responsibility has included direction and management of the Mechanical Engineering, electromechanical Engineering, Quality Assurance Technologies and the Welding Technology programs. In addition to his program, management focus is on program development, validation, assessment, and expansion. Two new areas being pursued are interactive Multimedia Technology, and Telecommunications Engineering Technology including distance learning. Mr. Queen is President of the International Interactive Communications Society.

Prior to joining Columbus State community College, he has held positions as Vice-President of Col-X Corporation; Manager, Engineering Quality Assurance, Dresser Industries; and a Research Scientist with Battelle Memorial Institute. Mr. Queen is a recipient of the A. F. Davis Silver Medal Award, for excellence of his paper in the filed of Machine Design.

Additionally, Mr. Queen is a doctoral candidate at The Ohio State University in Vocational-Technical Education with a focus on entrepreneur leadership.

Introduction:

New economic pressures have been put on academia in recent years. These pressures are a result of a call for new and higher levels of accountability from governing bodies and the public that we serve. Together they demand justification of our program needs and, in many, cases, question the value of our continued existence. These new demands require a new course of action. Our old philosophies and methods are not adequate to address this challenge. It will require systemic change within our institutions to meet these challenges. To deal with this new environment we must consider new approaches to manage our endeavors.

Our institutions are in the throes of historic change. We are experiencing downsizing, a shift toward higher proportions of part-time faculty, limits on funding for facilities and equipment, and calls from the government and the community for fiscal responsibility. They have threatened that future funding for colleges will be 'performance based'! We are being expected to simply do more with less (Cross, 1994). Our community and the agencies that fund our operations are the main stakeholders in our success or failure. Is the plight of academia unique? Is there somewhere to look for guidance? Has someone out there survived such a change?

Academia has long disdained any comparisons to private industry. However, there is a striking similarity between our current situation and the pressures that have reshaped American business and industry over the past twenty years. Private industry has experienced pressures much like those we now face from their shareholders (i.e., stakeholders). They have survived downsizing, rightsizing, cost cutting, performance based resource allocation and increased accountability. They have been expected to justify every action based on its return on investment(ROI). To the surprise of many the innovative among them have not only survived, they have thrived!

The organizations that have risen to the forefront of American private industry have done so primarily through the implementation of a continuous improvement (i.e., quality) management philosophy. They have not only embraced a new set of values, they have learned to use new tools to help them to redesign their organizations. These tools have helped them to assess their current position, to identify their problem areas, to develop appropriate strategies for correcting those problems, and to develop an unending commitment to sustain this process over and over. The questions that they have been forced to ask themselves are the very same ones that we are now having to address!

The response of many in The Academy towards the TQM movement has been very cold. A high degree of reluctance to consider TQM in higher education has been tied directly to its business birthright and language (Seymour, 1991). Academia is unquestionably a different environment than private industry. Does this, however, justify throwing away the experience of twenty years of successful examples? Quite possibly the model is not wrong; it is merely in the wrong setting. It is unlikely that we can 'dump' corporate TQM procedures into our schools and expect them to be successful. We cannot do this any more than a small business can adopt the same procedures that worked in a mega-conglomerate. We can, however, distill the essence from the principles and philosophies and successfully adapt them to our own climate.

The pressures for change do not leave open the opportunity to say no and continue on as before. It is not a question of if; it is a question of how! The consequences for inaction range from stagnation to threatening our survival. For the brave few it is an opportunity to be at the forefront of the 'new higher education system'. It is clear to the authors that the common use of phrases such as return on investment and cost/benefit analysis will no longer be the exclusive territory of private business. It is with this ideology that we present a brief selection of essential tools that we believe will be valuable to help you take your first steps towards continuous improvement.

Continuous improvement:

Quality improvement is not an event, a program or a goal. Quality improvement is a process predicated on a long-term organizational commitment to fundamental change. This change requires a high level of commitment and strong direction to stay the course. This change process is different from anything previously attempted in traditional education. The process promotes process stabilization, improvement and innovation. We are admonished to "beware of programs. By definition, programs end. Performance improvement, by contrast, should never end" (Rummler & Brache, 1990).

The continuous improvement process is based on management by data. This often overlooked premise of continuous improvement lies at the very core of its value system. All actions are predicated on the collection of baseline data which serve as the benchmark upon which all improvement activities are measured. It is this constant collection of data that serves as the source to analyze the current health of the organization, identify potential problem areas, and measure the success and/or failure of corrective actions. These same data can be used, in the forecasting mode, to project future results and to justify the need for future actions.

Basic measurement tools:

PDCA cycle: The Deming Plan-Do-Check-Act (PDCA) cycle (Deming, 1982) is the fundamental building block upon which the continuous change process is anchored. The PDCA cycle, as illustrated in Figure 1, is often called the cycle of learning. This tool provides a systematic roadmap to assist in identifying potential areas of improvement, pilot-testing potential remedies, evaluating the effects, and institutionalizing the changes. The process is better defined as a spiral than a cycle. Its intent is to work through the process time and again to make continuous improvements. Utilizing this model people benefit through learning continuously and sharing their learning throughout the system and thereby improving themselves and the organization as a whole. The PDCA cycle has universal application underlying all other improvement activities and should be used as a roadmap to guide and direct *all* change initiatives.

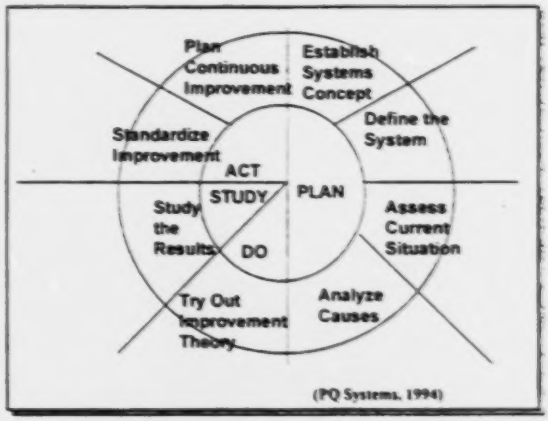

Fig. 1 - The PDCA Cycle

Run chart: Even after the commitment has been made to managing based on data the first obstacle encountered is the absence of objective information. The run chart is one of the most basic tools for collecting this data. "A run chart is simply a line graph of data plotted over time. The purpose of making a run chart is to look at the system's behavior over time" (PQ Systems, 1994). The primary function of the run chart is to minimize variation from a stable performance standard and to alert the user to any movement that may indicate a need for corrective action. Although the run chart has a striking

193 BEST COPY AVAILABLE

resemblance to a more traditional line chart it's unique characteristic lies in its establishment of upper and lower control limits. The control limits indicate the maximum allowable variance from required performance. Utilizing TQM's zero defects philosophy(Crosby, 1984) any event that exceeds the control limits requires an explanation, action, and resolution.

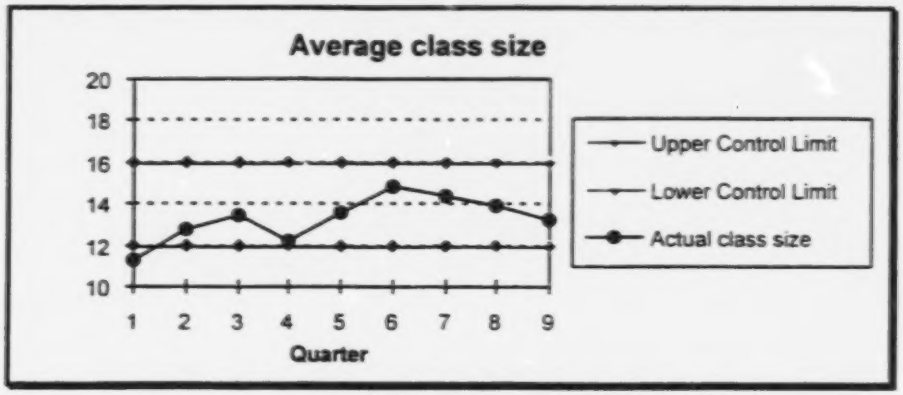

Fig. 2: Run Chart

Application example: Monitoring average class size to assure appropriate utilization of facilities and personnel. (Fig. 2) Other uses for this type of chart include: classroom utilization, faculty class load, expense control, full-time / part-time ratio. (Any measure that has a static objective value)

Trend Chart: The function of the trend chart is the ability to see long-term movement and to forecast future performance. Like it's cousin, the run chart, it is a line chart that produces a visual output of data over time. It's application, however, is more useful for forecasting than for control.

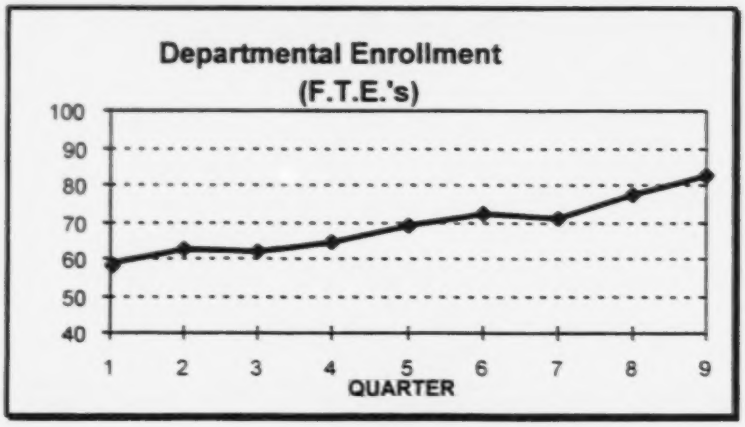

Fig. 3: Trend Chart

Application example: A practical application of this chart would be tracking enrollment (Fig.3). This type of chart is valuable in identifying trends in changing values.

Flow chart: The flow chart is the basic analysis tool in identifying work flow. Many of the problems we encounter are not due to 'people problems'. The vast majority of problems are due to dysfunctional systems (Juran, 1989). Unless required to put it on paper most managers can't even clearly define the existing system. If they can't define it, how can they fix it? And, until the cause of the problem is identified and addressed we will be forced to continue to repeatedly deal with only with the symptoms!

The flowchart illustrated in Figure 4 requires that you document and analyze all of the steps involved in any work process. Performance of this analysis can assist you to define potential problem areas, identify all of the parties involved in the process, and pinpoint areas of responsibility.

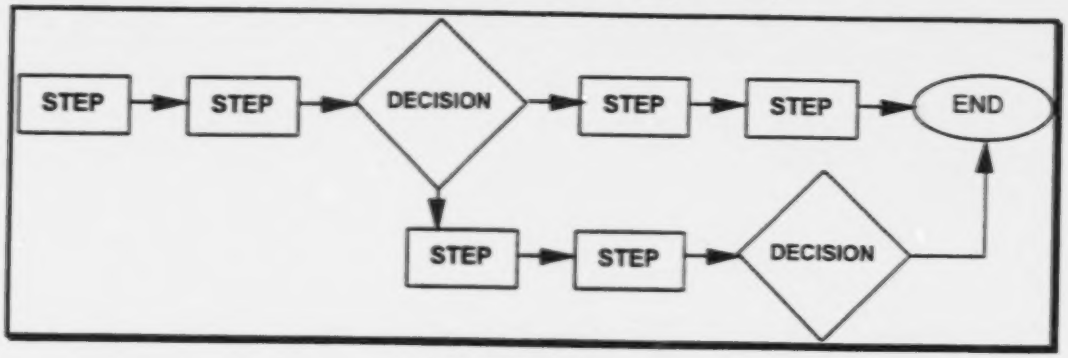

Fig. 4: Flowchart

Application example: You identify a problem with a high number of students who enroll in the school but never end up taking a class. Charting the college intake process can lead to identifying where students are getting lost along the way.

Program review and education:

The program review and evaluation model, if effectively applied, represents a systematic and comprehensive internal audit of instructional departments. The model utilized at Columbus State includes the following components:

Evaluation Measure	Current Standard
Retention of Students	.040
Attraction New Students	1.00
Average Class Lecture Size	15.00
Class size trend	0.80
Department FTE count	15.00
FTE trend	.085
Head count	32.00
Income vs direct expense	1.33
Income vs total expense	0.90
Placement rate	0.80
Annual degrees awarded	0.85
Preparation for employment	0.80
Student evaluation	4.0

A quality measure for accountability can be provided using the program review and evaluation model. Included are specific unit-cost information to provide quality/cost relationships. If we use performance in comparison to standard criteria, a generalized average operating effectiveness rating[1] can be presented as follows:

Program	3 Yr Ave Rating 1988-91	1991 Rating	1994 Rating	1996 Rating
Graphic Comm. Tech	.67	.75	.82	.90

The data are sufficient to identify areas for improvement. A positive improvement trend has occurred since 1988. Improvements in performance are needed in the areas of student retention and average class size. Trend data provides that even though the technology is below the college standard in these two areas, positive improvements have been observed in all program review areas since 1992.

Cost / benefit analysis:

We can *expect* to be held fiscally 'accountable' for our actions. An adaptation of Gordon Swanson's cost / benefit model (Swanson & Gradous, 1988) provides an approach to organize the foundation of a sound argument to justify our current and proposed actions. Identifying all of the potential monetary, manpower, and facilities costs required to develop and implement a new plan and then comparing them to the expected benefits derived from its implementation provides a concise and powerful argument of the return on investment that can be expected. Return on investment is probably the single issue that *all* of the vested interests (internal or external) can understand, support, and advocate on your behalf.

ACTION OPTIONS:	1_____	2_____
(a) What UNIT of performance are you measuring ?	_____	_____
(b) What is the performance GOAL at the end of the program ?	_____	_____
(c) What is the BASELINE performance at the beginning of the program?	_____	_____
(d) What VALUE is assigned to the improvement?	_____	_____
(e) What is the TIME required to reach the expected performance level ?	_____	_____
(f) What is the EVALUATION PERIOD? (enter the longest time (e) of all options being considered)	_____	_____
(g) How many PERSONNEL will participate in the program ?	_____	_____
(h) Will personnel produce MEASURABLE OUTPUT during the program ?	_____	_____
(i) What total MEASURABLE OUTPUT will be produced during the DEVELOPMENT TIME ?	_____	_____
(j) How much MEASURABLE OUTPUT will be produced during the EVALUATION period ?	_____	_____
(k) What is the PERFORMANCE VALUE GAIN of the ACTION OPTION?	_____	_____

Fig. 5: Cost / Benefit Analysis

Application example: Based on input from your industry advisory board you are proposing the expansion of your department to include a new major. Using the questions involved in the form can help you identify and quantify key factors that will demonstrate both your understanding of what it takes to develop and implement the program and the costs and benefits that will be associated with the endeavor.

The bottom line:

Why are all of these new procedures necessary? Data collection and charting are not end products, they are means to an end and that end is "to justify your present and ensure your future". Consistent use of

these tools can be valuable in justifying your current position and to 'selling' your future plans to your stakeholders!

Private industry has utilized these same tools to explain their current position, to show patterns of improvement, to display positive growth signs, and to successfully 'sell' their proposed programs to upper management. Why does it work? It works because it shows an understanding of the reasons for accountability: the ability to make an unbiased and fact based decision that makes the decision a sound investment.

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[1] Meets or exceeds evaluation criteria standard divided by total number of criteria being measured